ſhould not appear in the like manner. But, I will determine nothing of any of theſe things. When I ſhall hereafter have made more frequent Obſervations of the Moon with my *great Teleſcopes*, in convenient time, I ſhall then perhaps learn more of it, than I know at preſent, at leaſt it will excite the *Curious* to endeavor to make the like Obſervations; and it may be, others, that I have not thought of.

The Inſtance of the ſame Perſon *to Mr.* Hook, *for communicating his Contrivance of making, with a Glaſs of a Sphere of* 20 *or* 40 *foot* diameter, *a* Teleſcope *drawing ſeveral hundred foot; and his offer of recompenſing that Secret with another, teaching To meaſure with a* Teleſcope *the* Diſtances of Objects *upon the Earth.*

In *Numb.* 4. Of theſe *Papers*, pag. 67. Mr. *Hook* had intimated, that he would ſhortly diſcover a way of his, with a *Plano-convex* Glaſſe of a Sphære of 20. or 40. feet *Diameter*, without *Veines*, and truly wrought of that *Figure*, to make a *Teleſcope*, that with a ſingle *Eye-glaſs* ſhould draw 300, 400, yea 1000 feet, *without* at all *altering the Convexity*: Monſieur *Auzout* returns this conſideration, and offer upon it, which follows:

To perform (*ſaith he*) with a *leſſer Object-glaſs* the effect of a *great Teleſcope*, we muſt find out a way to make ſuch an *Object-glaſs* to receive as many Rayes as one will, without their being ſenſibly diſtant from one another; to the end, that by applying to it a *ſtronger Eye-glaſs*, there may be ſtill Beams enough to ſee the Object, and to obliterate the ſmall ſpecks and imperfections of the *Eye-glaſs*. And if Mr. *Hook* hath this Invention, I eſteem it one of the greateſt, that can be found in the matter of *Teleſcopes*: If he pleaſe to impart it to us, we ſhall be obliged to him; and

I wiſh, I had a ſecret in *Opticks* to encourage him to that communication. If I did believe, that this would be eſteemed one, To meaſure with a *great Teleſcope* the *diſtance of Objects* upon the *Earth*; which I have found long ſince, and propoſed to ſome by way of Paradox; *Locorum diſtantias ex unica ſtatione, abſque ullo Inſtrumento Mathematico, metiri*; I doe here promiſe to diſcover it to him, with the neceſſary Tables, as ſoon as He ſhall have imparted his to me; which I will uſe, as he ſhall order me. For, although the *Practiſe* doe not altogether anſwer the *Theory* of my Invention, becauſe that the length of the *Teleſcopes* admits of ſome Latitude; yet one comes near enough, and perhaps as Juſt, as by moſt of the wayes, ordinarily uſed with Inſtruments. That, which I am propoſing, I doubt not but M. *Hook* will ſoon underſtand, and ſee the determination of all Caſes poſsible. I ſhall only ſay, that if we look upon the ſole *Theory*, we may make uſe of an ordinary *Teleſcope*, whereof the *Eye-glaſs* is to be *Convexe*: for, by putting the Glaſſes at a little greater diſtance, than they are, proportionably to the diſtance for which it is to ſerve, and by adding to it a *new Eye-glaſs*, the Object will be ſeen diſtinct, though obſcure; and if the *Eye-glaſs* be *Convexe*, the Object will appear erect. They may be done two manner of ways; either by leaving the *Teleſcope* in its ordinary ſituation, the *Object-glaſs* before the *Eye-glaſs*; or by inverting it, and putting *this* before *that*. But if any will make uſe of two *Object-glaſſes*, whereof the *Focus's* are known, the diſtance of them will be known. If it be ſuppoſed, that the *Focus* of the *firſt* be B. and *that* of the *ſecond* C. and the diſtance given, $B + 2D$, and that D *minus* C. be *equal* to F; for, this diſtance will be *equal* to $B + C + F - r\,F^{2} - C^{2}$. And if you have the *Poeus* of the *firſt Object-glaſs*, equal to B, the diſtance, where you will put the *ſecond* Glaſs equal to $B + G + D$. the *focus* of the 2d Glaſſe will be found equal to $\frac{CD}{C+D}$. And if you will that the Object ſhall be magnified as much with theſe two Glaſſes, as it would be with a ſingle one, whereof the *Focus* ſhould

ſhould be of the diſtance given, having the *Focus* of the *Object-glaſs* given equal to B, and the diſtance given to $B+D$; the diſtance between the firſt and the ſecond Glaſs will be equal to $\frac{2B^2+2BD}{2B+D}$, whence ſubducting B (the *Focus* of the *Object-glaſs* given) there remains $\frac{BD}{2B+D}$; and if this ſum be ſuppoſed equal to C, we ſhall eaſily know, by the precedent Rule, the *Focus* of the *ſecond* Glaſs.

So far M. *Auzout*, who, I truſt, will receive due ſatisfaction to his deſire, as ſoon as the happy end of the preſent Contagion ſhall give a beginning and life again to the Studies and Actions of our retired *Philoſophers*.

I ſhall onely here adde, That the Secret he mentions [*of meaſuring the diſtance of Places by a Teleſcope (fitted for that purpoſe) and from one ſtation*] is a thing already known (if I am not miſ-informed) to ſome Members of our Society; who have been a good while ſince conſidering of it, and have contrived ways for the doing of it: Whether the ſame with thoſe of Mr. *Auzout*, I know not. Nor have I (at the diſtance that I am now from them) opportunity of particular Information.

An Experiment of a way of preparing a Liquor, that ſhall ſink into, and colour the whole Body of Marble, *cauſing a* Picture, *drawn on a ſurface, to appear alſo in the* inmoſt *parts of the Stone.*

This *Experiment*, having been hinted at in the next foregoing *Papers*, out of the *Mundus Subterraneus* of *Athanaſius Kircher*, and ſeveral Curious Perſons, who either have not the leiſure to read Voluminous Authors, or are not readily skilled in that Learned Tongue wherein the ſaid Book is written, being very deſirous to have it transferred hither, it was thought fit to comply with their deſire herein.

The Author therefore of the *Mundus*, &c, having ſeen ſome